

## DESCRIPTION OF A MALE AND A FEMALE OF THE WATER MITE *NEUMANIA MAGADANICA* TUZOVSKIJ (ACARIFORMES, UNIONICOLIDAE)

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ABSTRACT: The first illustrated description of the male and female of the water mite *Neumania magadanica* from standing waters of the Magadan Province of Russia is given.

KEY WORDS: Unionicolidae, *Neumania*, water mite, male, female, standing waters

### INTRODUCTION

The water mite *Neumania magadanica* is only known from the deutonymph (Tuzovsky 1990). The purpose of the present paper is to describe its male and female.

### MATERIALS AND METHODS

**Material examined.** 12 males, 6 females, Russia, Magadan Province, basin of the Kolyma and Anadyr rivers, small lakes, June–August, 1978, 1979, 1981, leg. P.V. Tuzovsky.

The majority of the specimens were not dissected in order to preserve the natural shape of the body; only for several females and males, the gnathosoma was mounted laterally to investigate the chelicerae and pedipalps. All mite specimens were mounted in Hoyer's medium.

Nomenclature of idiosomal setae follows that of Tuzovsky (1987). The following abbreviations are used: P–1–5, pedipalp segments (trochanter, femur, genu, tibia and tarsus); I–Leg–6, first leg, segments 1–6 (trochanter, basifemur, telofemur, genu, tibia and tarsus) i.e. III–Leg–4 = genu of third leg; L — length; W — width. The length of appendage segments was measured along their dorsal side. All measurements are given in micrometers.

**Family Unionicolidae Oudemans, 1909**  
**Subfamily Neumaniinae Thor, 1923**  
**Genus *Nemanina* Lebert, 1879**  
***Neumania magadanica* Tuzovskij, 1990**

Figs 1–13

**Diagnosis. Adults.** Dorsum without dorsalia, P–2 with two subequal dorsodistal setae, P–3 with two unequal dorsodistal setae, ventral platelets bearing setae and glandularia *Le* rather large and not fused to genital field, excretory pore free. **Male.** Integument with numerous pointed denticles, genital plate with 16–26 genital acetabula on each side. **Female.** Integument with numerous

small bumps, each genital plate with 20–36 genital acetabula.

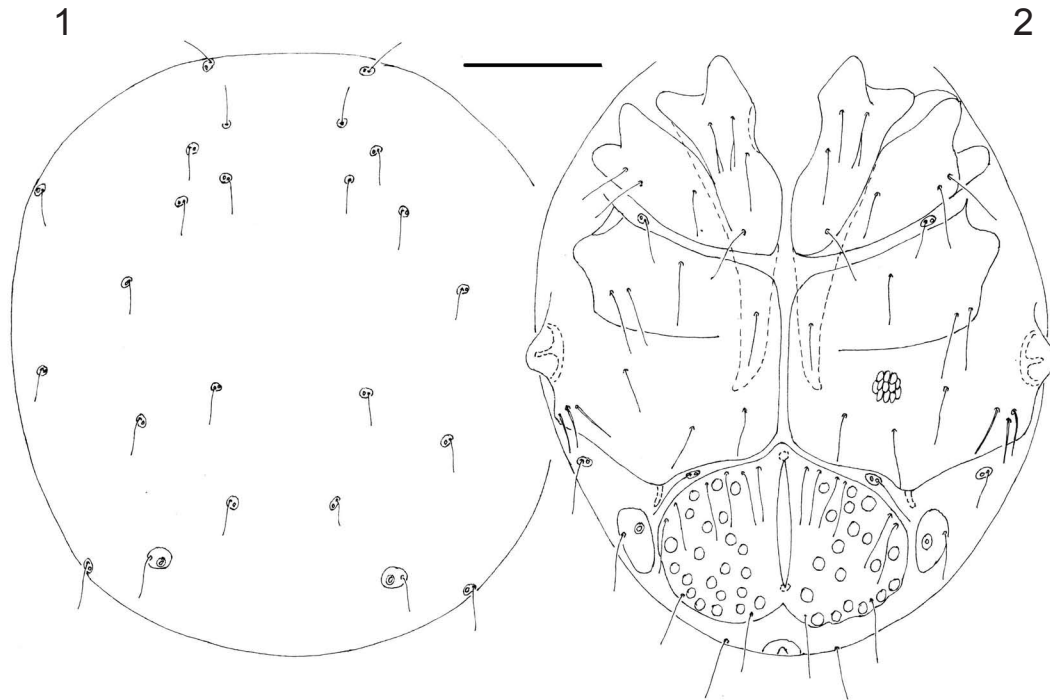
**Description. Male.** Number of idiosomal setae typical for the genus *Neumania* (Tuzovsky 1987). Setae *Fp*, *Oi* and *Pi* without glandularia, other idiosomal setae associated with glandularia. Dorsum (Fig. 1) without dorsalia, setae *Ci* located on rather large tubercles. Excretory pore free, surrounded by slightly sclerotized ring.

Coxal plates arranged in four groups (Fig. 2). Posterior apodemes of coxal plates I–II reaching of to middle of coxal plates IV, posterior projections of coxal plates IV very short and narrow. Suture line between coxal plate III and IV incomplete, disappearing medially. Genital field wide, with anteromedian protrusion and posteromedian incision, with 16–26 acetabula and 7–9 thin setae on each side. Setae *Le* situated on rather large platelets lateral to genital field.

Integument soft, covered by very fine pointed denticles (Fig. 3).

Capitulum (Fig. 4) compact, with long anchoral process. Chelicera (Fig. 5) short, with strong stylet. Pedipalp (Fig. 6) moderately slender: P–1 short, with single short dorsal seta; P–2 large, with one proximal seta and two distal subequal setae; P–3 relatively short, with two unequal dorsodistal setae, long seta twice longer than short seta; P–4 thin, with two ventral setae, single distolateral peg-like seta, and four to five dorsal thin setae; P–5 with dorsoproximal long solenidion, four short, thick spines and five thin distal setae.

Shape and arrangement of setae on leg I and IV shown on Figs 7–8. Distal end of IV–Leg–3 with 3 long swimming setae, distal end of IV–Leg–4 with 4 long swimming setae and distal end of IV–Leg–5 with 2 short swimming setae (Fig. 8). IV–Leg–3 with 2 small and 1 large (distal) ventral pectinate setae, IV–Leg–4 with 4–5 small and 1 large (distal) ventral pectinate setae, IV–Leg–5



Figs 1–2. *Neumania magadanica*, male: 1 — dorsal view; 2 — ventral view. Scale bar: 1–2 = 200.

with 5–7 small and 1 large (distal) ventral pectinate setae. Leg claws I–II (Fig. 9) smaller than leg claws III–IV (Fig. 10).

Measurements (n=12). Idiosoma L 625–775; genital field L 160–190, W 270–300; capitulum, including anchoral process L 145–165; basal segment of chelicera L 110–120, cheliceral stylet L 63–66; pedipalpal segments (P–1–5) L: 24–32, 88–92, 55–65, 84–92, 36–40; lengths of leg segments: I–Leg-1–6: 70–75, 170–195, 145–165, 200–230, 235–269, 300–335; II–Leg-1–6: 70–80, 145–165, 140–165, 220–230, 245–260, 305–345; III–Leg-1–6: 75–90, 130–145, 110–130, 180–190, 220–235, 265–300; IV–Leg-1–6: 95–105, 135–155, 150–170, 220–245, 245–270, 285–320.

**Female.** Similar to male. Differs by genital field, integument, and number of swimming and pectinate setae on legs IV. Integument soft, covered by numerous small bumps (Fig. 11). Genital plates (Fig. 12) separate, each plate with 20–36 acetabula and 5–7 thin setae; in addition, 2–3 genital setae (rarely 5–6) situated between posterior margin of coxal plate IV and anterior margin of genital plate on each side.

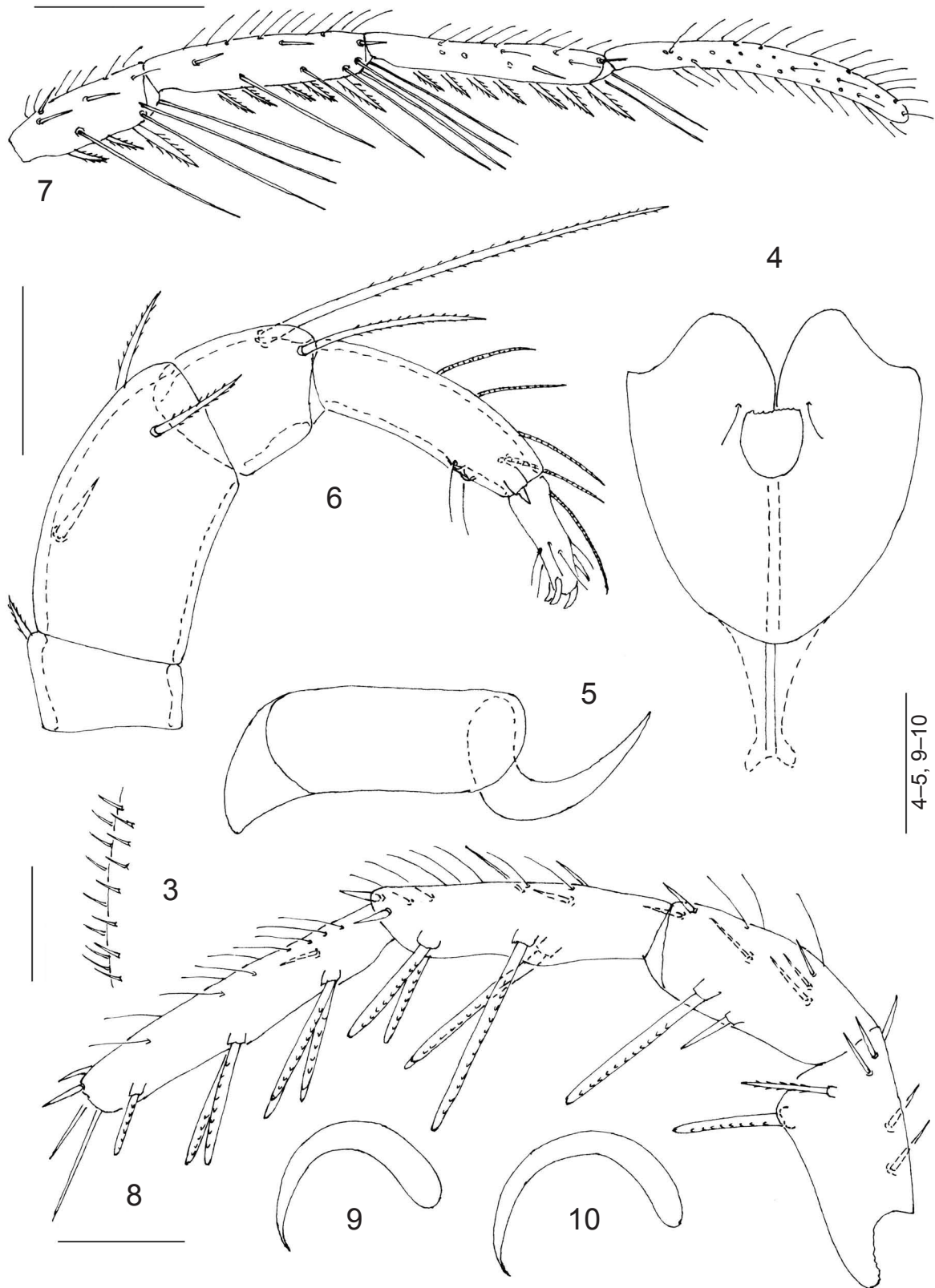
Shape and arrangement of setae on legs IV shown on Fig. 13. Distal end of IV–Leg-3 with 3 long swimming setae, distal end of IV–Leg-4 with 5 long swimming setae and distal end of IV–Leg-5 with 4 long swimming setae. IV–Leg-3 with 3 small and 1 large (distal) ventral pectinate setae,

IV–Leg-4 with 4–5 small and 1 large (distal) ventral pectinate setae, IV–Leg-5 with 4–5 small and 1 large (distal) ventral pectinate setae.

Measurements (n=6). Idiosoma L 770–1060; genital plate L 195–210, W 145–190; capitulum, including anchoral process L 160–190; basal segment of chelicera L 150–170, cheliceral stylet L 88–96; pedipalpal segments (P–1–5) L: 35–40, 148–168, 88–100, 128–140, 52–56; lengths of leg segments: I–Leg-1–6: 95–105, 285–300, 225–260, 330–365, 365–385, 415–450; II–Leg-1–6: 115–125, 225–260, 220–245, 355–390, 375–400, 430–465; III–Leg-1–6: 115–130, 225–240, 210–220, 300–325, 365–410, 405–450; IV–Leg-1–6: 135–165, 240–270, 285–325, 390–425, 405–450, 395–465.

## DISCUSSION

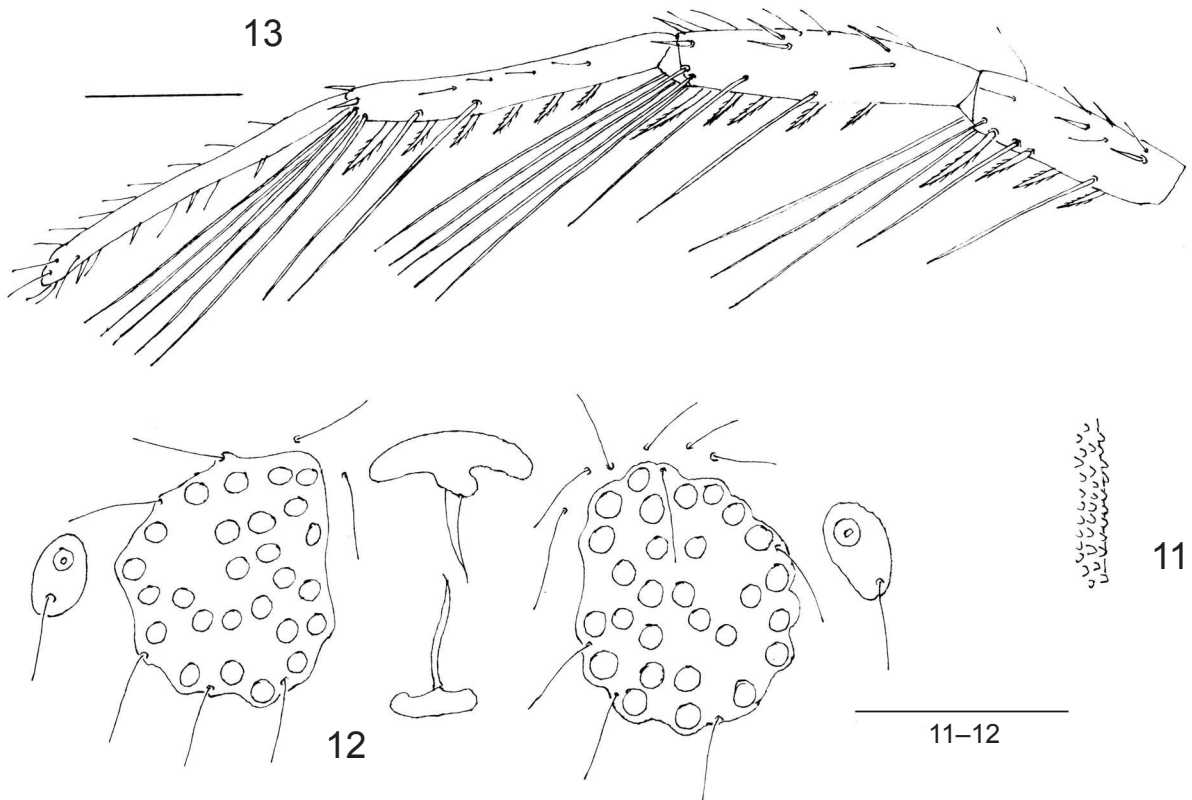
The new species is similar to *Neumania punctata* Marshall, 1922. The adults of *N. magadanica* differ from *N. punctata* by the following characters (character states of *N. punctata* follow from Marshall 1922 and Conroy 1992 and are indicated in parentheses): adults — the dorsum without dorsalia (with a pair of small dorsalia), P–2 with two subequal dorsodistal setae (with two unequal dorsodistal setae), P–3 with two unequal dorsodistal setae (with two subequal dorsodistal setae); male — the integument with fine pointed denticles (with small bumps), the platelets, bearing setae *Le*, free



Figs 3–10. *Neumania magadanica*, male: 3 — fragment of integument; 4 — capitulum, ventral view; 5 — chelicera, lateral view; 6 — pedipalp, lateral view; 7 — leg I, except trochanter and tarsus; 8 — leg IV, except trochanter and tarsus; 9 — claw of leg I; 10 — claw of leg IV. Scale bars: 3 = 25; 4, 5, 9, 10 = 50; 6, 8 = 100; 7 = 200.

(fused to the genital plate), the genital plate with 16–26 genital acetabula on each side (about 50 genital acetabula on each side), the excretory pore

is free (fused to the posterior margin of the genital plate); female — each genital plate with 20–36 acetabula (with 44–52 acetabula).



Figs 11–13. *Neumania magadanica*, female: 11 — fragment of integument; 12 — genital field; 13 — leg IV, except trochanter and basifemur. Scale bars: 11–12 = 50; 13 = 200.

#### REFERENCES

- Conroy, J.C. 1992. A revision of the species of the genus *Neumania* sensu stricta in North America, with descriptions of seven new species (fourth part). *Acarologia*, 33 (2): 165–175.
- Marshall, R. 1922. The American water mites of the genus *Neumania*. *Transaction of the Wisconsin Academy of Sciences*, 20: 205–213.
- Tuzovsky, P.V. 1987. *Morfologiya i postembrional'noye razvitiye vodyanykh kleshchey* [Morphology and Postembryonic Development in Water Mites]. Nauka Publ., Moscow, 172 pp. [in Russian]
- Tuzovsky, P.V. 1990. *Opredelitel' deytynomf vodyanykh kleshchey* [Key to deutonymphs of water mites]. Nauka Publ., Moscow. 238 pp. [in Russian]